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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/519,599	03/06/2000	Kazuo Maeda	OKA-B914	8776

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EXAMINER

QUACH, TUAN N

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/519,599

Applicant(s)

MAEDA, KAZUO

Examiner

Tuan Quach

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,11 and 13-42 is/are pending in the application.
- 4a) Of the above claim(s) 28-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,11,13-27 and 40-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for "said film containing boron, carbon and OH" as H<sub>2</sub>O and not OH was recited in the independent claim.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3-8, 13, and 40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,281,113. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

The formation of the SiO<sub>2</sub> by PECVD including source gas and oxidative gas and compound containing B and annealing in oxygen or oxygen plasma to form the porous SiO<sub>2</sub> in instant claims 1, 3-4, 40, as delineated in '113, claims 1, 6, and 11 including the same source gas as delineated in claims 4 and 6, and wherein the inclusion of boron

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containing gas would have been obvious as in claims 9 and 11; the provision of an underlying insulating layer as in, e.g., claim 8 corresponds to well known insulating covered substrate and would have been obvious. The covering insulating layer, e.g., as in instant claim 13 would have been further obvious over '113 claim 14.

Claims 1, 3-8, 11, 13-27, and 40-42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,413,879. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

The instant claims would have been obvious over '879 claims which also form the porous SiO<sub>2</sub> wherein it would have been obvious to one skilled in the art that the RF power applied on the source gas corresponds to the same PECVD process in the instant claims (compare e.g., instant application, page 9 lines 20 et seq., page 13 lines 3 et seq., page 17 lines 23-25 corresponding the conventional application of RF power for generating the plasma in plasma CVD) and wherein the annealing in oxygen or oxygen plasma in the instant claims would correspond to the oxidizing step in '879 claims wherein the deposited film is converted to a porous film using oxygen plasma, e.g., as in claim 14 of '879. The inclusion of boron in the instant claims would have been obvious over the teaching in claim 4 of '879. The source gas including the oxidative gas as in the instant claims would have been obvious as shown in '879 claim 2. The source gas would have been further obvious as shown in '879 claim 10. Regarding the sidewall by anisotropic etching, e.g., as in instant claims 11, 24, 41, such would correspond to the further structures of spacers as in claims 17 and 18 (of '879) and thus would have been

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obvious. The inclusion of hydrogen plasma as in instant claim 23, and the covering film as in instant claim 27 and the underlying insulating film as in claim 22 would have been further obvious as evidenced by claims 15, 16, 19. The inclusion inert gas, e.g., as in instant claims 3, 17, corresponds to claim 13 (of '879). The employment of anti-oxidizing film as in claim 26 would have been obvious over the inclusion of a barrier metal film on the filled metallic film in the damascene trench as in claim 17 above. The inclusion of a barrier underlying the filling metal is well known in the art to provide barrier characteristics and as such would have been obvious.

The prior art rejections previously applied are withdrawn as it appears that Vines is silent regarding the recitation of the porous  $\text{SiO}_2$  film.

It is again noted that this application contains claims 28-39 drawn to an invention non-elected with traverse. Applicant is urged to cancel the non-elected claims to simplify the issues unless applicant intend to take further action regarding further traversal as delineated in Paper No. 13, page 2 first paragraph, as the application cannot be passed to issue with pending claims non-elected with traverse.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Huang, Hoshino et al., Hu et al. are cited of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is 703-308-1096. The examiner can normally be reached on M - F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Wael Fahmy can be reached on (703) 308-4918. The fax phone number for

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the organization where this application or proceeding is assigned is (703) 872-9318  
(Before Final) and (703) 872-9319 (After Final).

Any inquiry of a general nature or relating to the status of this application or  
proceeding should be directed to the receptionist whose telephone number is 703-308-  
0956.



Tuan Quach  
Primary Examiner